Listing of Claims:

1. (Previously presented) A method of fabricating a polymer waveguide, comprising (a) forming a first polymer film in proximity to a substrate, the first polymer film comprising a nonlinear optical chromophore; (b) poling and crosslinking the first polymer film to provide a crosslinked first electro-optic polymer film; (c) forming a second polymer film comprising a nonlinear optical chromophore in proximity to the first electro-optic polymer film; and (d) poling the second polymer film to provide a second electro-optic polymer film;

wherein the first polymer film forms an optically transmissive core, said core comprising:

a surface that receives light and is substantially orthogonal to the input direction of light into the core; and

a length, along which light propagates, having a linear dimension greater than either of the two linear axes that define the surface area.

2. (Original) The method of Claim 1, wherein the second electro-optic polymer film is crosslinked.

3. (Original) The method of Claim 1, wherein the refractive index of the second electro-optic polymer film is lower than the refractive index of the first electro-optic polymer film.

4. (Original) The method of Claim 3, wherein the first electro-optic film is dry etched to form a rib or quasi rib before the forming a second polymer film comprising a nonlinear optical chromophore in proximity to the first electro-optic polymer film.

5. (Original) The method of Claim 4, wherein dry etching comprises using a metal hardmask.

6. (Original) The method of Claim 5, wherein the metal hardmask comprises titanium or platinum.

7. (Original) The method of Claim 4, wherein the rib or quasi rib is a Mach-Zehnder modulator, directional coupler, or micro-ring resonator.

8. (Original) The method of Claim 4, wherein the substrate comprises a crosslinked electro-optic polymer.

9. (Original) The method of Claim 4, further comprising (e) forming a polymer buffer clad in proximity to the second electro-optic polymer film.

10. (Original) The method of Claim 9, wherein the first electro-optic polymer film has a thickness of about 2.4 to about 3.8 μm and a refractive index of about 1.54 to about 1.62; the second electro-optic first polymer film has a thickness of about 1.0 to about 3.0 μm and a refractive index of about 1.53 to about 1.61; and the polymer buffer clad has a thickness of about 2.2 to about 2.8 μm and a refractive index of about 1.445 to about 1.505.

11. (Original) The method of Claim 10, wherein the polymer buffer clad is crosslinked.

12. (Original) The method of Claim 3, wherein the first electro-optic polymer film is formed as a rib quasi rib, quasi-trench, or trench be methods comprising laser ablation, bleaching, positive tone photolithography, negative tone photolithography, or embossing.

13. (Original) The method of Claim 3, wherein the first electro-optic polymer film forms a trench or quasi-trench.

14. (Original) The method of Claim 13, wherein the substrate comprises a crosslinked electro-optic polymer.

15. (Original) The method of Claim 1, wherein crosslinking the first polymer film occurs above about 160 °C.

16. (Original) The method of Claim 1, wherein the film is crosslinked during poling.

17. (Original) The method of Claim 1, wherein the film is crosslinked before poling.

18. (Original) The method of Claim 1, wherein the forming a first polymer film comprising a nonlinear optical chromophore comprises spin coating, dip coating, or brushing.

19. (Original) The method of Claim 1, wherein the forming a second polymer film comprising a nonlinear optical chromophore comprises spin coating, dip coating, or brushing.

20. (Original) The method of Claim 1, wherein the refractive index of the first electro-optic polymer is lower than the refractive index of the second electro-optic polymer.

21. (Original) The method of Claim 20, further comprising (e) dry etching the second electro-optic film to form a rib or quasi rib and (f) forming a polymer buffer clad in proximity to the second electro-optic polymer film.

22. (Original) The method of Claim 21, wherein the polymer buffer clad is crosslinked.

23. (Original) The method of Claim 20, wherein the second electro-optic polymer film forms a quasi-trench or trench.

24. (Original) The method of Claim 23, further comprising (e) forming a first polymer buffer clad in proximity to the second electro-optic polymer film.

25. (Original) The method of Claim 24, wherein the polymer buffer clad is crosslinked.

26. (Original) The method of Claim 20, wherein the second electro-optic polymer film is formed as a rib quasi rib, quasi-trench, or trench be methods comprising laser ablation, bleaching, positive tone photolithography, negative tone photolithography, or embossing.

27. (Previously presented) The method of Claim 1, wherein the substrate comprises a polymer, an organically modified sol-gel, or an electro-optic polymer.